Bulletin, Southern California Academy of Sciences
Volume 48 - - - - - - Part 2, 1949

TWO APPARENTLY NEW GEOMETRID SPECIES FROM THE SOUTHWEST

By John L. Sperry
Riverside, California

In the Sperry collection, there has been for some time a series of a Racheospila species, taken in the southern desert of California and going under the name of *diaphana,* Warren. In compiling the original descriptions of the Geometridæ the author noted that the type locality of *diaphana* is Peru and it seemed that there might be reason to doubt the occurrence of this species in the deserts of Southern California. Furthermore, Prout (Gen. Ins. 1912, 104) had placed *diaphana* in the first section in his division of the genus, which section is characterized by "Hindwing with C never anastomosing, abdomen very rarely with embossed spots, male antennæ with short or very moderate pectinations." Our Southern California species belonged without doubt in Section II having "C anastomosing shortly with the cell and abdomen with embossed white spots" although the male antennal pectinations are not long.

An appeal to the British Museum for information brought an immediate clarification of the problem. Mr. Fletcher informs me that *diaphana* Warr. equals *pomposa* Dogn. and falls to the older name. The types of *pomposa,* two males from Ecuador, are in the National Museum at Washington and so are unavailable to the author without a long journey which seems inadvisable.

The types of *diaphana* Warr., two females, are in the British Museum and Mr. Fletcher has kindly made slides of a female of our Southern Californian species and of one of type specimens and writes as follows: "I have had the opportunity of examining the types of Warren's *R. pomposa* (*diaphana*) from Peru. Your California specimen is certainly closely related to *pomposa* and so far as I can see is nearest to the Mexican race *p. indecora* Prout. In fact if your specimen had been larger I should probably have determined it as that without further check . . . I have made preparations of the tails and though they are very close they are undoubtedly distinct.

In *pomposa indecora* the sclerotised plate in the ductus bursæ is bluntly conical in shape, in the Californian specimen it is almost square and barely half the size."

With grateful thanks to Mr. D. S. Fletcher of the British Museum staff the author proposes to give the Southern Californian species a name and describes

Racheospila noël, sp. n.

Male and female: Palpi, moderate in male, long in female, white tinged with rose. Front, smooth scaled, white with wide dorsal rose band, white band between antennal shafts, collar narrowly rose. Antennal shafts white, pectinations, straw. Legs thin scaled with white, laved inwardly with pink atoms. Thorax and both wings, rivage green (Ridgway color). Abdomen beneath white, above green with large, raised, dorsal, white spots, circled broadly with rose on the first six segments, those on the third, fourth and fifth being larger than the others.

Primaries: Costa white bordered inwardly with rose, the latter heavy at the base and narrow or wanting beyond one-third out from the base. T.a. line narrow, white, leaves costa at ¼ goes at right angles thereto to midcell, thence angling inward to lower edge of cell, thence outward and back to inner margin at one-third from base. T.p. line from beyond ¾ on costa goes irregularly across wing to inner margin at two-thirds out from base, and angling sharply outward at the veins. A heavy, rose terminal line broken at the veins by white spots. Fringe white, with spreading rose spots at the vein ends. Discal spot distinct, rose, located at end of cell centrally.

Secondaries: T.a. and t.p. lines continued as on the primaries. T.a. line has shallow inward angle deviating from the curve and reaches inner margin at one-third. T.p. line reaches inner margin at four-fifths out from base. Fringes as in primaries. Discal spot rose, smaller than on primaries, at end of cell.

Beneath: much lighter green than above, forewing darker than hindwing.

Costa of primaries more heavily washed with rose than above. Discal spots on both wings minute. Lines show dimly through from upper side. Terminal line and fringes as above.

The expanse varies as does that of most desert geometrids, depending largely on the precipitation and temperature. There must be several broods, as the record shows winter, spring and summer captures in the type series before me. Expanse: Male 17-19 mm. Female 17-24 mm.

Holotype, male, Borrego, California, May 6, 1946, Grace H. and John L. Sperry coll. and in the Sperry collection.

Allotype, female, same data and in the same collection.

Paratypes, 5 males, 4 females, Borrego, Calif. and Tub Canyon, Borrego, Calif. Jan., Mar., May, July, Nov. and Dec. 1946, 7 and 8. Noël Crickmer coll. and in the U. S. National Museum, Canadian Nat. Museum, Museum of Comparative Zoölogy and British Museum; 2 males, Palm Springs, Calif., Mar. 4 and 8, 1922, Karl B. Coolidge coll. and 1 female same locality Oct. 11, 1922 and in the Los Angeles County Museum; 1 female, Borrego, Calif. Jan. 1946. Noël Crickmer, collector, and in the Crickmer collection; 2 males, Palm Springs, Calif. March and March 19, 1922, K. R. Coolidge, coll. and in the collection of the U. S. National Museum.

This species belongs next to *diaphana* Warr. in our check list and the author considers it doubtful if *diaphana* occurs in the United States. It differs from *pomposa* Dogn., as far as can be told from the description, by the lack of the yellow terminal and costal shading, by the presence of well marked t.a. lines and genitalically as stated by Mr. Fletcher.

As the best flight of this insect in the southern desert appears to begin about Christmas and as most of the Sperry series was taken by our friend Mr. Noël Crickmer at his Tub Canyon Guest Ranch in Borrego, California, it seems fitting to name this species in his honor, which the author ventures to do, with great pleasure.

Since 1937 there has been, in the Sperry collection, a single specimen of an unknown Chlorochlamys species from Mexican Wells, California; in 1947 and 1948, trips to the Organ Pipe Cactus National Monument in Southern Arizona turned up a small series which the author here describes as

Chlorochamys fletcheraria, sp. n.

Male and female: Palpi, rosy ochreous; front, light green; antennal shaft light buff, pectinations short, tawny. Vertex light buff between the antennal shafts. Legs light buff. Thorax, abdomen and both wings, vetiver green (Ridgway color) Costa of fore wing and maculation light buff, the costal light buff area narrower in the female.

Primaries: T.a. line starts at a triangular spot one-third out on costa and curves slightly outward in going to inner margin at one-third from base.

T.p. line irregular from triangular spot ¾ out on costa to inner margin ¾ out from base. The t.p. line has a tendency to bow inward slightly between the veins. The lines are narrow except at costa but are distinct on both wings. Fringes very light buff with a light-green shade line through the base. Discal dot absent.

Secondaries: T.a. line wanting. T.p. from slightly nearer the base than continuation of same line of the primaries, goes irregularly across wing to two-thirds out on inner margin, bowing out slightly between veins 2 and 5.

Discal dot wanting. Fringes as on primaries.

Beneath: Costa of primaries has a rosy ochreous tinge, lines of upper side show dimly through. The green scales darken terminally into an obscure terminal line. Color slightly lighter than above, especially along inner margin of both wings. Distal dots absent. Fringes as above.

Expanse, male 12-14 mm.; female 13-14 mm.

Holotype, male, Organ Pipe Cactus National Monument, Arizona, April 14, 1948, Grace H. and John L. Sperry. coll. and in the Sperry collection.

Allotype, female, Mexican Wells, California, July 7, 1937, Grace H. Sperry collector and in the Sperry collection.

Paratypes, 9 males, 3 females, Organ Pipe Cactus National Monument, Ariz., April 11-20, 1947, 48; 1 male, Alamo Canyon, Ajo Mts., Ariz. Apr. 22, 1948, G. H. and J. L. Sperry, Coll.; 1 male, Nogales, Ariz. Aug. 16, 1947, F. H. Parker; 1 male Madera Canyon, Santa Rita Mts., Ariz. and 1 female same locality, July 31, 1947, Comstock and Martin, and in the U. S. Museum, American Museum of Nat. History, British Museum, Museum of Comparative Zoölogy, Canadian National Museum, the collection of the Organ Pipe Cactus National Monument and collection Sperry; 43 males, 3 females, Madera Canyon, Santa Rita Mts., Arizona, July 23 to August 27, 1946 and 1947 Dr. John A. Comstock and Lloyd Martin, coll. and in the collection of the Los Angeles County Museum and collection Sperry.

This species belongs immediately after *zelleraria Pack.* in the list and is the smallest of the known Chlorochlamys species. It is a darker green than any other species known to the author. Unfortunately the author has found that the maculation of the wings is too variable in this genus to be a reliable character for separation at all times. The small size and the bright, well marked lines on the dark green ground, together with the green scaled front will separate this species from the others in most cases.

The genitalia are probably closest to *zelleraria* Pack. It has the needle-like ædeagus of the genus but has a small needle-like spine apically which is lacking in *zelleraria,* the uncus is shaped the same in both species but in *fletcheraria* is shorter and broader centrally; the valvæ are narrower than in *zelleraria* and the central raised ridge which is rough and almost toothed in *zelleraria* is almost smooth in *fletcheraria.* In the female the chitinized vag-

inal opening is much heavier in *zelleraria* and there is a plate above the opening which is lacking in *fletcheraria.*

It gives me great pleasure to name this beautiful insect in honor of Mr. D. S. Fletcher of the British Museum staff, whose careful examinations and friendly coöperation has encouraged the author to again describe in this difficult genus.

THE OCCURRENCE OF BINARY FISSION IN THE METACYCLIC FORM OF *TRYPANOSOMA CRUZI* CHAGAS FROM *TRIATOMA LONGIPES* BARBER

By Sherwin F. Wood
Los Angeles City College

Much discussion has centered about the presence or absence of division in the trypanosome form of the causative agent of Chagas' disease or American human trypanosomiasis. Brumpt[1] believed metacyclic forms, i. e., the infective rectal phase of the parasite in the insect, were incapable of division and Dias[2] supported this view after unsuccessful attempts at culturing metacyclic trypanosomes. However, Niño[3] recorded a form, Plate 1, Fig. 29, suggestive of binary fission on slides prepared from feces of *Triatoma infestans,* and demonstrated from culture a double trypanosome stage with one kinetoplast in figure 14 of Plate 4. Elkeles[4] published two excellent photomicrographs, 10 and 11, in Plate 6 of *Trypanosoma cruzi* in binary fission from the feces of *Triatoma infestans.* Whitaker[5] was successful in culturing *Trypanosoma cruzi* from *Triatoma protracta* feces and reported metacyclic division forms in these cultures. Meyer[6] observed binary fission in the trypanosome form in fowl tissue cultures of *Trypanosoma cruzi.*

The fragility of this parasite has been noted by Brumpt,[7] Wenyon[8] and other workers. The writer has been partially successful in overcoming this by the use of heat fixation, i.e., warmed glass slides. However, no exact temperatures have been worked out which guarantee consistently uniform results.

On June 10, 1947, the writer received a naturally-infected female *Triatoma longipes* Barber from Mr. W. J. Cummings who

[1]Brumpt, E., Précis de Parasitologie, p. 236, 1927.
[2]Dias, E., Mem. Inst. O. Cruz, vol 42, p. 502, 1945.
[3]Niño, F., Misión de Estudios de Patología Regional Argentina, 4th Reunión, pp. 600-604, 1928.
[4]Elkeles, G., Boletin de la Academia Nacional de Ciencias, vol. 36, p. 407, pl. 6, figs. 10 and 11, 1944.
[5]Whitaker, B. G., Doctorate Thesis, Univ. Calif. Library, Berkeley, 1937.
[6]Meyer, H., Biol. Abs., vol. 19, p. 812, 1944.
[7]Brumpt, E., ibid, p. 231, 1927.
[8]Wenyon, C. M., Protozoology, vol. 1, p. 490, 1927.